REMARKS

In view of the comments which follow, reconsideration of the Official Action of June 15, 2004 is respectfully requested by Applicants.

A current claims listing dated 8/13/04 (2 pages) is submitted herewith.

Claims 44 and 49 have been amended to add the recitation "there being an inert surface between the test areas which does not bind to the analyte or other sample components". Antecedent basis for this recitation is found in the specification on page 10, lines 3-5, and page 7, lines 1-2. No new matter has been added.

Claims 44-52 are pending and stand finally rejected.

Rejection under 35 USC §102 (b)

Claims 44, 45, 49, and 51 have been rejected under 35 USC §102 (b) as being anticipated by Bellet et al., U.S. Patent No. 5,011,771 (hereinafter "Bellet"). The Examiner argues that Bellet discloses an immunometric assay comprising the formation of a complex between antigen and multiple immobilized monoclonal antibodies against different epitopes of the antigen and with a detectably labeled monoclonal antibody. The sandwich or immunometric assay is meant to include simultaneous, forward, and reverse sandwich assays. In a forward immunometric assay, sample is contacted with solid phase bound antibodies such that antigen in the sample is bound to the solid phase bound antibodies. Detectably labeled antibodies are then added to the solid phase. Labeled antibody on the solid phase is then detected as an indication of analyte presence. The solid phase of the reference is an immunoabsorbent, which may be beads formed from glass, polystyrene, polypropylene, dextran, nylon, and other materials, or tubes formed or coated with such materials. According to the reference, it is important that the multiple immobilized antibodies be bound in close proximity (column 8, lines 7-9). The monoclonal antibody may be labeled with any detectable label. Any animal sample containing a detectable antigen can be used in the assay. Any multivalent antigen can be detected with the assay of the reference, including viral antigens such as hepatitis B, herpes simplex viruses I and II, herpes virus zoster,

cytomegalovirus, Epstein-Barr virus, and papova viruses such as measles, rubella, or influenza. The materials for use in the assay are ideally suited for packaging in a kit.

The subject matter of the present invention is a method for multiepitope detection of an analyte in a sample, the analyte comprising two or more specific binding regions, i.e., epitopes. In the method for multiepitope detection according to the present invention, two or more test areas are provided that are spatially separated. The test areas are discrete and are separated by an inert surface which does not bind to the analyte or to other sample components. On each of the test areas, exactly one receptor type is bound, the receptor type in each of the spatially separated test areas being different from the receptor types of the other test areas. Each of the receptor types binds exactly to one specific epitope of the analyte. Thus, different epitopes of the analyte are addressed in the different test areas.

Bellet teaches a multiepitopic immunometric assay for a multivalent antigen in a sample in which a single test area is provided having bound thereto a mixture of at least two different antibodies on an insoluble solid phase and using one of said two antibodies in a soluble, detectably labeled form. A sandwich assay is then carried out with this configuration (column 3, lines 33-37). Further, Bellet teaches the importance of the multiple immobilized antibodies being bound in close proximity. Bellet teaches away from the use of only one immobilized monoclonal antibody (column 3, lines 38-44). Bellet does not teach or even suggest a solid phase comprising a non-porous support and first and second spatially separate test areas, nor does Bellet teach or suggest a first receptor specific for an analyte bound to a first test area and a second receptor specific for the analyte bound to a second test area. Bellet does not teach or suggest an inert surface between multiple test areas wherein the inert surface does not bind to the analyte or other sample components.

In the Examiner's response to Applicants' previous arguments, the Examiner argues that simply because antigen of Bellet's method attaches to the solid phase via both immobilized antibodies, it does not necessarily follow that these antibodies must be in a single test area. Further, while Bellet may indeed teach that close proximity of the multiple immobilized antibodies is important, the claims to which the reference was applied under 35 USC 102(b) do

not recite any requisite separation that would differentiate the claims over the reference. In the absence of a specific recitation of the requisite separation, spatial separation may properly be interpreted as even the most miniscule separation.

It is now expressly recited in Applicants' claims that there is an inert surface between the spatially separate test areas which does not bind to the analyte or other sample components. Applicants' claims also recite that there is no more than one analyte-specific receptor bound per test area. Therefore, in Bellet's method, the multivalent antigen must bind to multiple antibodies immobilized in a single test area. If an inert surface separated the immobilized antibodies, the antigen would be physically unable to bind to both antibodies and the method of Bellet would be inoperable.

Since Bellet does not teach a solid support comprising a first and a second spatially separate test area nor a first receptor bound to the first test area and a second receptor bound to the second test area, there being no more than one analyte-specific receptor bound per test area and there being an inert surface between the test areas which does not bind to the analyte or other sample components, Bellet cannot anticipate Applicants' invention. Applicants respectfully request the Examiner's reconsideration of his rejection of claims 44, 45, 49, and 51.

Rejection under 35 USC §103 (a)

Claims 46-48, 50, and 52 have been rejected under 35 USC §103 (a) as being unpatentable over Bellet. The Examiner argues that the reference teaches a multiepitopic assay as previously discussed under 35 USC §102 (b). However, the reference does not teach the diameter of the test area, a control area, or latex particles as the label. The Examiner argues that it would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use a control area and latex particles as the label with the method and kit of Bellet. One would have been motivated to do so because the use of a control area allows determination of background or baseline, which permits calibration of the assay system and a more sensitive measurement of analyte presence. In addition, since the reference teaches that any suitable label may be used, one could have used latex particles with a reasonable expectation of success.

Further, the selection of a specific label simply represents an optimization of the assay protocol that one of skill in the art could have easily chosen based on preference. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. It would also have been obvious to use test areas with diameters less than 1 mm. The reference teaches that immobilized antibodies must be in close proximity to each other, and choosing the actual size of the area simply represents an optimization of the assay. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

In rebuttal, Applicants argue that the Examiner's case for *prima facie* obviousness has not been made. Claims 46-48 and claims 50 and 52 depend from independent claims 44 and 49, respectively. Patentability of claims 44 and 49 has been argued under 35 USC §102 above, and dependent claims 46-48, 50, and 52 should enjoy the same patentability as the claims from which they depend. Applicants respectfully request the Examiner's reconsideration of this ground for rejection of claims 46-48, 50, and 52.

Applicants submit that their application is now in condition for allowance, and favorable reconsideration of their application in light of the above amendments and remarks is respectfully requested. Allowance of claims 44-52 at an early date is earnestly solicited.

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The Examiner is hereby authorized to charge any fees associated with this Amendment to Deposit Account No. 50-0877. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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